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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/787,195	02/27/2004	Kazutaka Yanagita	00862.023490.	4582

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EXAMINER

KOCH, GEORGE R

ART UNIT PAPER NUMBER

1734

DATE MAILED: 02/13/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/787,195

Applicant(s)

YANAGITA ET AL

Examiner

George R. Koch III

Art Unit

1734

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 November 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 and 12-21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) _____ is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>4/9/04; 8/24/05</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1-3, 5-10, 12-15, and 17-21 are rejected under 35 U.S.C. 102(a) and (e) as being anticipated by Suga (US 2003/0168145).

As to claim 1, Suga discloses a bonding system comprising: a processing unit which processes surfaces of first and second substrates (see paragraph 0026, see also Figure 3); an operation unit (item 303) which overlays the first and second substrates processed by said processing unit; and a chamber which accommodates and isolates from an outer space said processing unit and operation unit, wherein a process for the first and second substrates by said processing unit includes a process of cleaning (item 304) and/or activating (item 306) the surface of the first and second substrates.

As to claim 2, Suga discloses a filter (item 100, see paragraph 0071-00077, see also Figure 3, and paragraph 0089), wherein an interior of said chamber is cleaned by said filter.

As to claim 3, Suga discloses a loader (paragraph 0089) connected to said chamber, said loader including a mechanism which purges an atmosphere in said chamber.

As to claim 5, Suga is capable of being used a process for the first and second substrates by said processing unit includes a process of removing a moisture on the surfaces of the first and second substrates to a predetermined level. This claim does not appear to recite a positive structure element.

As to claim 6, Suga is capable of being used with a process for the first and second substrates by said processing unit includes a process of removing a moisture on the surfaces of the first and second substrates to a predetermined level and thereafter setting the moisture on the surfaces to a predetermined level so that a bonding strength of the first and second substrates increases.

As to claim 7, Suga discloses a processing unit comprises a mechanism (cleaning line 302) which removes a particle on the surfaces of the first and second substrates.

As to claim 8, Suga discloses that the processing unit comprises a mechanism (cleaning line 302, 304, etching line 305) which removes an organic substance on the surfaces of the first and second substrates.

As to claim 9, Suga is capable of being used such said processing unit (ionizer - see paragraph 0103) comprises a mechanism which sets an activation state of the surfaces of the first and second substrates to a predetermined state.

As to claim 10, Suga is capable of being used such said processing unit (ionizer - see paragraph 0103) comprises a mechanism which activates the surfaces of the first and second substrates so that a bonding strength of the first and second substrates increases.

As to claim 12, Suga discloses a measurement unit (inspection units 1309 and 1310) in the chamber which measures a state of the surfaces of the first and second substrates and wherein the processing unit processes the surfaces of the first and second substrates on the basis of a measurement result of said measurement unit.

As to claim 13, Suga discloses a determination unit (inspection units 1309 and 1310) which checks whether or not the measurement result of said measurement unit is within a predetermined range, wherein the process by said processing unit is performed when said determination unit determines that the measurement result is not within the predetermined range.

As to claim 14, Suga discloses a filter (item 100, see paragraph 0071-00077, see also Figure 3, and paragraph 0089), wherein an interior of said chamber is cleaned by said filter.

As to claim 15, Suga discloses a loader (paragraph 0089) connected to said chamber, said loader including a mechanism which purges an atmosphere in said chamber.

As to claim 17, Suga discloses a processing unit comprises a mechanism (cleaning line 302) which removes a particle on the surfaces of the first and second substrates.

As to claim 18, Suga discloses that the processing unit comprises a mechanism (cleaning line 302, 304, etching line 305) which removes an organic substance on the surfaces of the first and second substrates.

As to claim 19, Suga discloses that said processing unit comprises a mechanism which activates the surfaces of the first and second substrates so that a bonding strength of the first and second substrates increases.

As to claim 20, Suga is capable of being used such said processing unit (ionizer - see paragraph 0103) comprises a mechanism which activates the surfaces of the first and second substrates so that a bonding strength of the first and second substrates increases.

As to claim 21, Suga is capable of maintaining the humidity to a substantially constant level.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Art Unit: 1734

4. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

5. Claims 4, 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Suga as applied to claims 1 above, and further in view of Miyazawa (US Patent 5,769,991).

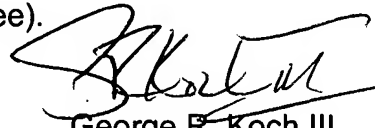
As to claim 4 and 16, Suga does not disclose a mechanism that increases a pressure in said chamber to be higher than that outside said chamber.

However, Miyazawa discloses that it is known to control the pressure of the chamber during SOI bonding (column 1, lines 5-32, column 6, lines 60-67). One in the art would appreciate that such pressure control would ensure the minimum necessary pressure for bonding, ensuring a better final product. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have utilized such pressure control mechanisms, capable of raising the pressure higher than that outside the chamber, in order to ensure the minimum necessary pressure for bonding.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to George R. Koch III whose telephone number is (571) 272-1230. The examiner can normally be reached on M-F 9-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christopher Fiorilla can be reached on (571) 272-1187. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



George R. Koch III
Primary Examiner
Art Unit 1734

GRK
1/23/2006